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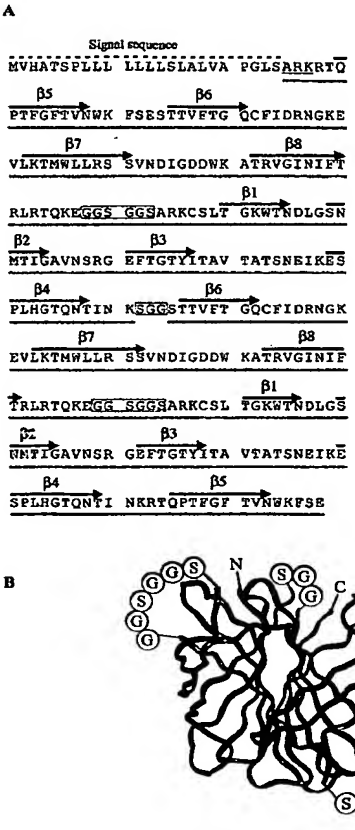

(57) Abstract: Two circularly permuted avidin monomers are designed. The circularly permuted monomers are fused and the resulting fusion peptides (dcAvd) form a pseudo-tetrameric dual-chain avidin, which is biologically active in biotin binding and shows similar structural characteristics as wild-type avidin. The dcAvd makes the development of dual-affinity avidins possible by allowing the adjustment of the ligand binding properties in the half of the binding sites differently than in the rest of the sites. The present invention provides further a single-chain avidin (scAvd) where two dcAvd-molecules are fused together via a linker to form a single polypeptide with four binding sites for biotin or other ligand.

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